

Assistant Research Scientist
School of Forest, Fisheries, and Geomatics Sciences (SFFGS)
Institute of Food & Agricultural Sciences (IFAS)
University of Florida (UF)
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CURRENT POSITION

University of Florida	2022- present
Assistant Research Scientist	
Areas of Research: Forest Ecology and Inventory, Botany, Forest Management, Data Science, Geographic Information Systems (GIS), Remote Sensing, Artificial Intelligence (AI), and Forest Disturbance (including fire and hurricanes).	

EDUCATION

University of Sao Paulo - Brazil	2010 - 2014
Ph.D., Forest Resources Advisor: Edson Vidal, Ph.D.	
<i>Thesis:</i> "Production and management of two potential non-timber forest products in the Amazon context - the cipó-titica (<i>Heteropsis</i> spp.) and copaiba (<i>Copaifera</i> spp.)"	
State University of Parana - Brazil	2012 - 2014
Specialization, Post-graduation in Forest Management	
Advisor: Timni Vieira, Ph.D.	
<i>Monograph:</i> "Caracterização do cenário dos artigos publicados sobre os produtos florestais não madeireiros, em âmbito nacional e internacional nos últimos 21 anos"	
State University of Santa Catarina - Brazil	2005- 2009
BS, Forest Engineering	
Federal Institute of Santa Catarina- Brazil	2002- 2004
Forest Technician	

ACADEMIC EXPERIENCE & EMPLOYMENT

Federal University of São João Del-Rei – UFSJ	2018 - 2022
Associate Professor	
Areas of Specialization: Tropical Forest management, forest ecology, fire science, GIS and remote sensing	
USDA Forest Service - Moscow Forestry Sciences Laboratory - USA	Aug. 2015 – Aug. 2018
Postdoctoral Research Fellow	
Advisor: Andrew T. Hudak, Ph.D	
Project: RxCADRE - Data set for fuels, fire behavior, smoke, and fire effects model development and evaluation	

Universidad Politécnica de Madrid – UPM (Madrid, Spain)

Sep. 2012 – Nov. 2012

Advisor: Luis Diaz Balteiro, PhD

Graduate research fellow. Forest management and economics of non-timber forest product

Instituto Nacional De Investigacion Agropecuaria – INIA (Tacuarembó, Sep. 2009 – Dec. 2009 Uruguay)

Advisor: Cecilia Rachid, PhD

Undergraduate research fellow. Site index classification in forest plantation

International Student Exchange Program - Universidad de la Republica Uruguay – UdelaR (Montevideo, Uruguay)

Aug. 2009 – Nov. 2009

Management of parks and watersheds class – forest engineer undergraduate.

Associação de Preservação do Meio Ambiente do Alto Vale do Itajaí (Association for the Preservation of the Environment of the Alto Vale do Itajaí)- APREMAVI (Atalanta, Brazil)

Jan. 2009 – Feb. 2009

Field survey (floristic and phytosociological) for characterization of vegetation in a region in the municipality of Atalanta-SC.

The Department for Environment of the municipality of Lages (Lages, Aug. 2008 – Dec. 2008 Brazil)

Internship in the environmental inspection sector.

RESEARCH EXPERIENCE

University of Florida - UF

Feb. 2022 - present

USDA FS: Imputing surface fuel fire radiative energy estimates at tree object scales (\$266,477.00). Dr. Klauberg is the PI.

NSF: Collaborative Research: Frameworks: OpenForest4D - A web- based cyberinfrastructure platform for next generation 4D forest mapping and monitoring. (US\$3.3M). Dr. Klauberg is a collaborator - University of Florida (US\$1,356,788).

NASA-Commercial SmallSat Data Analysis (CSDSA): HurricaneSat4D: Exploring the use of PlanetScope and GEDI Data for Assessing Post-Hurricane Damage Severity and Forest Recovery in Southern US Forests. (US\$329,533.00). Dr. Klauberg is a collaborator.

NASA-Carbon Monitoring System (CMS): CMS4D: A Multi-Scale Data-Fusion Prototype System for the next Generation of Carbon Dynamics Monitoring from Space: A Case Study in the Brazilian Cerrado – Fire and Fuel in a Biodiversity Hotspot. (US\$638,498.57). Dr. Klauberg is a collaborator.

NASA - ICESat-2: ICESat-4D: Monitoring Forest Resistance and Post-Hurricane Recovery Dynamics in Southern Forests by the Synergism of ICESat-2, SAR, and Optical Data and an Ecosystem Demography Model. (US\$492,214.82). Dr. Klauberg is a collaborator.

USDA-NIFA: RapidFEM4D: A web-based mapping platform for rapidly assessing the impacts and near-term recovery of Hurricane Ian on forest ecosystems in Florida. (\$300,000.00). Dr. Klauberg is a collaborator.

2023-2026

JFSP: EMS4D: multi-scale fuel mapping and decision support system for next generation of fire management. (\$492,115). Dr. Klauberg is a collaborator.

Federal University of São João del Rei – UFSJ - Brazil

Nov. 2018 – Abr. 2022

Research group: Carine Klauberg, Ph.D. (PI).

Project: “Mapping fuel load and simulation of fire behavior and spread in the Cerrado biome using modeling and remote sensing technologies”

Research funding: Brazilian National Council for Scientific and Technological Development (CNPq/IBAMA-PrevFogo).

USDA Forest Service - Rocky Mountain Research Station (Moscow, USA) Mar. 2016 – 2018

Research group of Andrew T. Hudak, Ph.D.

Project: “Predicting immediate and extended fire effects on a mixed conifer forest at high resolution from lidar and multispectral imagery” *Research funding:* USDA Forest Service.

Feb. 2014 – Feb. 2016

USDA Forest Service - Rocky Mountain Research Station (Moscow, USA)

Research group of Andrew T. Hudak, Ph.D.

Project: “Use of ordinary kriging and Gaussian conditional simulation to interpolate airborne fire radiative energy density estimates”.

Research funding: Brazilian National Council for Scientific and Technological Development (CNPq) and RxCADRE.

Aug. 2011 – Aug. 2014 University of São Paulo (Piracicaba, Brazil) - Tropical forestry laboratory (LASTROP)

Research group of Edson Vidal, Ph.D.

Project: “Productive and management potential of two non-timber products in the community context in the Amazon region, cipó-titica (*Heteropsis* spp.) and copaíba (*Copaifera* spp.)”.

Research funding: Brazilian National Council for Scientific and Technological Development (CNPq) and São Paulo Research Foundation (FAPESP)

Jan. 2012 – Feb. 2012 Brazilian Agricultural Research Corporation – EMBRAPA Mid-North (Teresina, Brazil)

Research group of Mariana Carvalhaes, Ph.D.

Project: “Heterogeneity of babaçu palm forests productivity in Northeastern Brazil”

Research funding: Brazilian National Council for Scientific and Technological Development (CNPq)

Sep. 2010 – Jan. 2011 National Association of Producers of Wood Floors – ANPM (Piracicaba, Brazil)

Research group of Ariel de Andrade, Ph.D.

Project: “Technological and economic analysis of the Brazilian sector of wood floors”

Research funding: Brazilian National Council for Scientific and Technological Development (CNPq)

Jan. 2012 – Feb. 2012

State University of Santa Catarina - UDESC (Lages, Brazil)

Research group of Adelar Mantovani, Ph.D.

Project: “Floristic and phytosociological characterization of a fragment of Mixed Ombrophilous Forest in the Municipal Park of Lages, SC.”

Research funding: Brazilian National Council for Scientific and Technological Development (CNPq)

State University of Santa Catarina - UDESC (Lages, Brazil)

Jan. 2012 – Feb. 2012

Research group of Adelar Mantovani, Ph.D.

Project: “Genetic and demographic structure of a natural population of *Araucaria angustifolia* (Bert.) O.

Kuntze in the state of Santa Catarina.”

Research funding: Santa Catarina Research Foundation (FAPESC)

PEER-REVIEWED PUBLICATIONS (50 ARTICLES)

2025

51. Feng Jiang et al. ,Mycorrhizal symbioses and tree diversity in global forest communities. Science Advances.11,eadt5743(2025). <https://doi.org/10.1126/sciadv.adt5743>

50. Forkel, M., Wessollek, C., Andela, N., de Laat, J., Huijnen, V., Kinalczyk, D., Marrs, C., van Wees, D., Bastos, A., Ciais, P., Fawcett, D., Kaiser, J. W., Kutchartt, E., **Klauberg, C.**, Leite, R. V., Li, W., Silva, C., Sitch, S., Goncalves De Souza, J., & Plummer, S. (2024). Burning of woody debris dominates fire emissions in the Amazon and Cerrado. Nat. Geosci. 18, 140–147 (2025). <https://doi.org/10.1038/s41561-024-01637-5>

49. Schlickmann^G, M.B.; Bueno, I.T.; Valle, D.; Hammond, W.M.; Prichard, S.J.; Hudak, A.T.; Klauberg, C.; Karasinski, M.A.; Brock, K.M.; Rocha, K.D.; Silva, C.; Klauberg, C.. Statewide Forest Canopy Cover Mapping of Florida Using Synergistic Integration of Spaceborne LiDAR, SAR, and Optical Imagery. Remote Sens. 2025, 17, 320. <https://doi.org/10.3390/rs17020320>

48. Rex^s, F.E.; Silva, C.A.; Broadbent, E.N.; **Klauberg, C.**; Dalla Corte, A.P.; Leite, R.; Hudak, A.; Hamamura, C.; Latifi, H.; Xiao, J.; Atkins, J. Spatial Characterization of Woody Species Diversity in Tropical Savannas Using GEDI and Optical Data. Sensors 2025, 25, 308. <https://doi.org/10.3390/s25020308>

2024

47. Forkel, M., Kutchartt, E., Wessollek, C., Silva, C.A., Andela, N., Vincent, H., Bastos, A., **Klauberg, C.** (2024). Burning of woody debris dominates fire emissions in the Amazon and Cerrado. *Nature Geoscience*.

46. Leite, R. V., Amaral, C., Neigh, C. S. R., Cosenza, D. N., **Klauberg, C.**, Hudak, A. T., Aragão, L., Morton, D. C., Coffield, S., McCabe, T., & Silva, C. A. (2024). Leveraging the next generation of spaceborne Earth observations for fuel monitoring and wildland fire management. *Remote Sensing in Ecology and Conservation*. <https://doi.org/10.1002/rse2.416>

2023

45. **Klauberg, C.**; Vogel, J.; Dalagnol, R.; Ferreira, M.P.; Hamamura, C.; Broadbent, E.; Silva, C.A. Post-Hurricane Damage Severity Classification at the Individual Tree Level Using Terrestrial Laser Scanning and Deep Learning. *Remote Sens.* 2023, 15, 1165. <https://doi.org/10.3390/rs15041165>
44. Rocha, K.D.; Silva, C.A.; Cosenza, D.N.; Mohan, M.; **Klauberg, C.**; Schlickmann, M.B.; Xia, J.; Leite, R.V.; Almeida, D.R.A.d.; Atkins, J.W.; Cardil, A.; Rowell, E.; Parsons, R.; Sánchez-López, N.; Prichard, S.J.; Hudak, A.T. Crown-Level Structure and Fuel Load Characterization from Airborne and Terrestrial Laser Scanning in a Longleaf Pine (*Pinus palustris* Mill.) Forest Ecosystem. *Remote Sens.* 2023, 15, 1002. <https://doi.org/10.3390/rs15041002>

2022

43. Corte, A.P.D.; da Cunha Neto, E.M.; Rex, F.E.; Souza, D.; Behling, A.; Mohan, M.; Sanquetta, M.N.I.; Silva, C.A.; **Klauberg, C.**; Sanquetta, C.R.; Veras, H.F.P.; de Almeida, D.R.A.; Prata, G.; Zambrano, A.M.A.; Trautenmüller, J.W.; de Moraes, A.; Karasinski, M.A.; Broadbent, E.N. High-Density UAV-LiDAR in an Integrated Crop-Livestock-Forest System: Sampling Forest Inventory or Forest Inventory Based on Individual Tree Detection (ITD). *Drones* 2022, 6, 48. <https://doi.org/10.3390/drones6020048>
42. Dalla Corte, A.P.; de Vasconcellos, B.N.; Rex, F.E.; Sanquetta, C.R.; Mohan, M.; Silva, C.A.; **Klauberg, C.**; de Almeida, D.R.A.; Zambrano, A.M.A.; Trautenmüller, J.W.; Leite, R.V.; do Amaral, C.H.; Veras, H.F.P.; Rocha, K.d.S.; de Moraes, A.; Karasinski, M.A.; Sanquetta, M.N.I.; Broadbent, E.N. Applying High-Resolution UAV-LiDAR and Quantitative Structure Modelling for Estimating Tree Attributes in a Crop-Livestock-Forest System. *Land* 2022, 11, 507. <https://doi.org/10.3390/land11040507>
41. Leite, R. V., Silva, C.A., Amaral, C. H., Liesenberg, V., Almeida, D. R. A., Midhun, M.; **Klauberg, C.** et al. Large-scale multi-layer fuel load characterization in tropical savanna using GEDI spaceborne lidar data. *Remote Sensing of Environment.* 268, Jan 2022, 112764. <https://doi.org/10.1016/j.rse.2021.112764>
40. Silva, C.A.; Hudak, A.T; Vierling, L.A.; Valbuena, R.; Cardil, A.; Mohan, M.; Almeida, D. A.; Broadbent,E.N.; Zambrano,A. M. A.; Wilkinson, B., Sharma,A., Drake,J. B.; Medley,P. B., Vogel, J. G.; Prata,G. A.; Atkins, J.; Hamamura,C.; **Klauberg, C.** 2021. TreeTop: A Shiny-based Application for Extracting Forest Information from LiDAR data for Ecologists and Conservationists. *Methods in Ecology and Evolution.* V13, pg1164-1176. <https://doi.org/10.1111/2041-210X.13830>
39. Liang, L. et al. Co-limitation toward lower latitudes shapes global forest diversity gradients. *Nature Ecology and Evolution.* 2022. <https://doi.org/10.1038/s41559-022-01831-x>

2021

38. Costa, M., Silva, C. A.; Broadbent, E. N.; **Klauberg, C.** et al. 2021. Beyond trees: mapping total aboveground biomass density in the Brazilian savanna using high-density UAV-lidar data. *Forest Ecology and Management.* v. 491: <https://doi.org/10.1016/j.foreco.2021.119155>

2020

37. Dalla Corte, A.P.; Rex, F.E.; Almeida, D.R.A.; Sanquetta, C.R.; Silva, C.A.; Moura, M.M.; Wilkinson, B.; Zambrano, A.M.A.; Cunha Neto, E.M.; Veras, H.F.P.; Moraes, A.; **Klauberg, C.**; Mohan, M.; Cardil, A.; Broadbent, E.N. Measuring Individual Tree Diameter and Height Using GatorEye High-Density UAV-Lidar in an Integrated Crop-Livestock-Forest System. **Remote Sens.** 2020, 12, 863. 7.
36. Corte, A. P. D.; Souza, D. V.; Rex, F. Ed.; Sanquetta, C. R. ; Mohan, M.; Silva, C. A.; Zambrano, A. M. A.; Prata, G.; Almeida, D. R.; Trautenmüller, J. W.; **Klauberg, C.**; De Moraes, A.; Sanquetta, M. N. ; Wilkinson, B.; Broadbent, E. N.. Forest inventory with high-density UAV-Lidar: Machine learning approaches for predicting individual tree attributes. *Computers and Electronics in Agriculture*, v. 179, p. 105815, 2020.
35. Silva, V.S., Silva, C.A., Silva, E.M., **Klauberg, C.**, Mohan, M., Cardil, A., Rex, F. Loureiro, G. Combined impact of sample size and modeling techniques for predicting volume in *Eucalyptus* spp. plantations from LiDAR data. **Forests.** 2020.
34. Rex, F., Silva, C.A., Corte, A.P., **Klauberg, C.**, Mohan, M., Cardil, A., Hudak, A. Comparison of Statistical Modelling Approaches for Estimating Tropical Forest Aboveground Biomass Stock and Reporting Their Changes in Low-Intensity Logging Areas Using Multi-Temporal LiDAR Data. *Remote Sensing.* 2020

2019

33. **Klauberg, C.**, Hudak, A., Silva, C.A., Lewis, S., Robichaud, P., Jain, T. Characterizing fire effects on conifers at tree level from airborne laser scanning and high-resolution, multispectral satellite data. *Ecological Modeling.* 2019
32. Silva, C.A., Pinagé, E., Mohan, M., Valbuena, R., Almeida, D., Broadbent, E., Jaafar, W., Papa, D., Cardil, A., **Klauberg, C.** ForestGapR: An R Package for Airborne Laser Scanning-derived Tropical Forest Gaps Analysis. *Methods in Ecology and Evolution.* 2019.
31. Mohan, M., Mendonça, B., Silva, C.A., **Klauberg, C.**, Ribeiro, R., Araújo, E., Monte, M., Cardil, A. Optimizing Individual Tree Detection Accuracy and Measuring Forest Uniformity in Coconut (*Cocos nucifera* L.) Plantations using Airborne Laser Scanning. *Ecological Modeling.* 2019.

2018

30. **Klauberg, C.**; Hudak, A.; Bright, B. C.; Boschetti, L.; Dickinson, M.; Kremens, R.; Silva, C. A. Use of ordinary kriging and Gaussian conditional simulation to interpolate airborne fire radiative energy density estimates. *International Journal of Wildland Fire*, v. 27, p. 228, 2018.
29. Huo, L.; Silva, C. A.; **Klauberg, C.**; Mohan, M.; Zhao, L.; Tang, P.; Hudak, A. T. Supervised spatial classification of multispectral LiDAR data in urban areas. *PLOS One*, v. 13, p. e0206185, 2018.
28. Silva, C. A.; Saatchi, S.; Alonso, M. G.; Labriere, N.; **Klauberg, C.**; Ferraz, A.; Meyer, V.; Jeffery, K. J.; Abernethy, K.; White, L.; Zhao, K.; Lewis, S. L.; Hudak, A. T. Comparison of Small- and Large-Footprint Lidar Characterization of Tropical Forest Aboveground Structure and Biomass: A Case Study from Central Gabon. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, p. 1-15, 2018.
27. Hentz, A. M. K.; Silva, C. A.; Corte, A. P. D.; Netto, S. P.; Strager, M. P.; **Klauberg, C.** . Estimating forest uniformity in *Eucalyptus* spp. and *Pinus taeda* L. stands using field measurements and structure from motion point clouds generated from unmanned aerial vehicle (UAV) data collection. *Forest Systems*, v. 27, p. e005, 2018.

26. Qu, Y.; Shaker, A.; Silva, C. A.; **Klauberg, C.**; Pinage, E. R. Remote Sensing of Leaf Area Index from LiDAR Height Percentile Metrics and Comparison with MODIS Product in a Selectively Logged Tropical Forest Area in Eastern Amazonia. *Remote Sensing*, v. 10, p. 970, 2018.
25. Ortega, E. M. M.; Cordeiro, G.; Cancho, V.; Hashimoto, E.; **Klauberg, C.** . Zero-spiked regression models generated by gamma random variables with application in the resin oil production. *Journal Of Statistical Computation and Simulation*, p. 1-19, 2018.
24. Silva, C.A.; **Klauberg, C.**; Hudak, Andrew T.; Vierling, L. A.; Liesenberg, V.; Bennett, L. G.; Scheraiber, C.; Schoeninger, E. Estimating Stand Height and Tree Density in *Pinus taeda* plantations using in-situ data, airborne LiDAR and k-Nearest Neighbor Imputation. *Anais Da Academia Brasileira de Ciências*, v. 90, p. 295-309, 2018.
23. Jaafar, W. S. W. M.; Woodhouse, I. H.; Silva, C. A.; Omar, H.; Maulud, K. N. A.; Hudak, Andrew T.; **Klauberg, C.**; Cardil, A.; Mohan, M. Improving Individual Tree Crown Delineation and Attributes Estimation of Tropical Forests Using Airborne LiDAR Data. *Forests*, v. 9, p. 759, 2018.
22. Silva, C. A.; **Klauberg, C.**; Hentz, A. M. K.; Corte, A. P. D.; Ribeiro, U.; Liesenberg, V. Comparing the Performance of Ground Filtering Algorithms for Terrain Modeling in a Forest Environment Using Airborne LiDAR Data. *Floram*, v. 25, p. 2-10, 2018.

2017

21. **Klauberg, C.**; Vidal, E.; Silva, C. A.; Hudak, A.T.; Oliveira, M.; Higuchi, P. Short-term effects of reduced-impact logging on *Copaifera* spp. (Fabaceae) regeneration in the eastern Amazon. *Forests*. v.8, p.257, 2017.
20. Silva, C.A.; **Klauberg, C.**; Hudak, A.; Vierling, L.; Jaafar, W.; Mohan, M.; Garcia, M.; Ferraz, A.; Cardil, A.; Saatchi, S. Predicting Stem Total and Assortment Volumes in an Industrial *Pinus taeda* L. Forest Plantation Using Airborne Laser Scanning Data and Random Forest. *Forests*. v.8, p.254-271, 2017.
19. Silva, C.A.; Hudak, A.T.; **Klauberg, C.**; Vierling, L.A.; Gonzalez-Benecke, C.; Padua, S.C.C.; Rodriguez, L.C.E.; Cardil, A. Combined Effect of Pulse Density and Grid Cell Size On Predicting And Mapping Aboveground Carbon In Fast-Growing Eucalyptus Forest Plantation Using Airborne Lidar Data. *Carbon Balance and Management*. v.12, p.12. 2017.
18. Silva, C.A.; Hudak, A.T.; Vierling, L.A.; **Klauberg, C.**; Garcia, M.; Ferraz, A.; Keller, M.; Eitel, J.; Saatchi, S. Impacts of Airborne Lidar Pulse Density on Estimating Biomass Stocks and Changes in a Selectively Logged Tropical Forest. *Remote Sensing*. v.9, p.1068. 2017
17. Mohan, M.; Silva, C. A.; **Klauberg, C.**; Jat, P.; Catts, G.; Cardil, A.; Hudak, A. Individual Tree Detection from Unmanned Aerial Vehicle (UAV) Derived Canopy Height Model In An Open Canopy Mixed Conifer Forest. *Forests*, v. 8, p. 340, 2017.
16. Silva, I. L. G.; Silva, C. A.; **Klauberg, C.**; Mello, J. M. Detecção de árvores individuais em área florestal mista de coníferas por meio de dados LiDAR aerotransportando. *Advances in Forestry Science*. v.4, p.107 - 112, 2017.
15. Silva, C. A.; **Klauberg, C.**; Carvalho, S.P.C.; Mendonca, B. Efeito da densidade de pontos LiDAR na predição da altura em plantações de *Pinus taeda* L. *Scientia Forestalis* (IPEF). v.45, p.1. 2017.
14. Silva, C. A.; **Klauberg, C.**; Carvalho, S.P.C.; Corte, A.P.D. Modeling and mapping basal area of *Pinus taeda* plantation using airborne lidar data. *Anais da Academia Brasileira de Ciências*. v.89, n. 3, p.1895-1905. 2017.
13. Silva, C.A., Hudak, A., **Klauberg, C.**, Rowell, E, Mohan, M., Cardil, A. etc. Comparison of terrestrial and airborne lidar-derived crown attributes estimates in longleaf pine forest at

Eglin Air Force Base, Florida, USA. *Remote Sensing*. 2017 ESA Annual Meeting (August 6 -- 11).

2016

12. **Klauberg, C.**; Silva, C. A.; Carvalho, S. P. C. E.; Peres, M. Panorama mundial sobre publicações técnico-científicas abordando Produtos Florestais Não Madeireiros nas duas últimas décadas. *Advances in Forestry Science*. v.3, p.29 - 37, 2016.
11. **Klauberg, C.**; Vidal, E.; Silva, C.A.; Bentes, M.; Hudak, A. Sampling methods for titica vine (*Heteropsis* spp.) inventory in a tropical forest. *Annals of Forest Science*. v.73, p.1 - 8, 2016.
10. Silva, C. A.; **Klauberg, C.**; Hudak, A.; Vierling, L.; Liesenberg, V.; Carvalho, S.; Rodriguez, L. C. E. A principal component approach for predicting stem volume in *Eucalyptus* plantations in Brazil using airborne LiDAR data. *Forestry (London)*. v.91, p.1 - 20, 2016.
9. Silva, C. A.; **Klauberg, C.**; Hudak, A.; Vierling, L.; Bernett, L. G.; Scheraiber, C.; Schoeninger, E.; Liesenberg, V. Estimating Stand Height and Tree Density in *Pinus taeda* plantations using *in situ* data, airborne LiDAR and *k*-Nearest Neighbor Imputation. *Anais da Academia Brasileira de Ciências (Impresso)*. v.1, p.1-15. 2016.
8. Hudak, A.T.; Bright, B.C.; Pokswinski, S.M.; Loudermilk, E.L.; O'brien, J.J.; Hornsby, B.S.; **Klauberg, C.**; Silva, C.A. Mapping Forest Structure and Composition from Low-Density LiDAR for Informed Forest, Fuel, and Fire Management at Eglin Air Force Base, Florida, USA. *Canadian Journal of Remote Sensing*. v.42, p.411 - 427, 2016.
7. **Klauberg, C.**; Silva, C. A.; Carvalho, S. P. C. E.; Peres, M. Panorama mundial sobre publicações técnico-científicas abordando Produtos Florestais Não Madeireiros nas duas últimas décadas. *Advances in Forestry Science*. v.3, p.29 - 37, 2016.

2015-2009

6. Silva, C.A.; **Klauberg, C.**; Carvalho, S.P.C.E.; Piccolo, M.C.; Rodriguez, L.C.E. Estoque de carbono na biomassa aérea florestal em plantações comerciais de *Eucalyptus* spp. *Scientia Forestalis* (IPEF). v.43, n.105, p.135-146, 2015.
5. Silva, C.A.; **Klauberg, C.**; Carvalho, S.P.C.E.; Hudak, A.; Rodriguez, L.C.E. Mapping aboveground carbon stocks using LiDAR data in *Eucalyptus* spp. plantations in the state of São Paulo, Brazil. *Scientia Forestalis* (IPEF). v.42, p.100 - 116, 2014.
4. **Klauberg, C.**; Vidal, E.; Rodriguez, L.C.E.; Diaz-Balteiro, L. Determining the optimal harvest cycle for copaíba (*Copaifera* spp.) oleoresin production. *Agricultural Systems*. v.131, p.116 - 122, 2014.
3. **Klauberg, C.**; Paludo, G. F.; Bortoluzzi, R. L. C.; Mantovani, A. Florística e estrutura de um fragmento de Floresta Ombrófila Mista no Planalto Catarinense. *Biotemas*. v.23, p.35 - 47, 2011.
2. Brancalion, P.H.S.; Silva, EJV Da; **Klauberg, C.** Reserva Legal pode ser boa oportunidade de negócios em propriedades rurais. *Visão Agrícola* (USP / ESALQ). v.10, p.18 - 21, 2012.
1. Paludo, G. F.; Mantovani, A.; **Klauberg, C.**; Reis, M.S. Estrutura demográfica e padrão espacial de uma população natural de *Araucaria angustifolia* (Bertol.) Kuntze (araucariaceae), na Reserva Genética Florestal de Caçador, Estado de Santa Catarina. *Revista Árvore* (Impresso), v.33, p.1109 - 1121, 2009.

RESEARCH ARTICLES IN PRESS, IN REVIEW OR IN PREPARATION

1. Brock, K.M.; Silva, C., **Klauberg, C.**; et al. Estimating longleaf pine (*Pinus palustris* Mill.) tree age using terrestrial laser scanning and multiple linear regression modeling. Forest Ecology and Management. 2023 (*in prep.*)
2. Bueno, I., Silva, C. A., **Klauberg, C.**, et al. Rising storms, rising needs: The call for robust specialized forest science infrastructure. Nature Climate Change. (*in prep.*)

PUBLISHED BOOKS AND CHAPTERS

1. Vidal, E.; West, T.A.P.; Lentini, M.W.; Souza, S.E.X.F. de; **Klauberg, C.**; Waldhoff, P. Sustainable Forest management (SFM) of tropical moist forests: the case of the Brazilian Amazon. In: Achieving sustainable management of tropical forests. Jürgen Blaser, Patrick D. Hardcastle (Ed.). BURLEIGH DODDS SERIES IN AGRICULTURAL SCIENCE: UK, London. 2021.
2. Silva, C.A.; **Klauberg, C.**, Mohan, M.; Bright, B. LiDAR Analysis in R and rLiDAR for Forestry Applications. P. 85. 2018.
3. Andrade, A.; Jankowsky, I.P.; Rangel, A.; **Klauberg, C.**; Silva, F.M.P.; Leite, M.K.; Geroto, P.G.; Oliveira, R.C.P.; Takeshita, S.; Oliveira, W.E. Economical and technological analysis of the wood flooring segment in Brazil. Piracicaba: ANPM Associação Nacional dos Produtores de Pisos de Madeira, v.1. p.69. 2011.
4. Rodriguez, L.C.E.; Mora, A.L.; Coelho, A.; Sebbenn, A.; Aguiar, A.; Higa, A.R.; Mariante, A.S.; Kanieski, B.; Hamamura, C.; Silva, C.A.; **Klauberg, C.**; Rosa, C.M.M.; Mori, E.S.; Gorgens, E.; Paludzyszyn Filho, E.; Tatagiba, F.; Pareyn, F.; Vieira, I.G.; Freitas, J.V.; Stape, J.L.; Muro, J.I.; Wadt, L.; Sampaio, M.J.A.M.; Lemes, M.; Freitas, M.L.M.; Kanashiro, M.; Barcellos, N.D.E.; Santos, P.E.T.; Silva, P.H.M.; Kageyama, P.; Potenza, R.; Collevatti, R.; Nobre, S.R.; Azevedo, V.R.; Amaral, W.; Oliveira, Y.M.M. Conservação e Gestão dos Recursos Genéticos Florestais no Brasil - Primeiro Relatório Nacional. Anuário. Brasília - DF: Secretaria de Biodiversidade e Florestas – Ministério do Meio Ambiente Brasília, 2012.
5. **Klauberg, C.**; Vidal, E. Estudo aperfeiçoa manejo de espécies florestais. Campo & Negócios Floresta. Uberlândia, MG, v.16, p.35 - 35, 2014.

PUBLISHED CONFERENCE PROCEEDINGS AND ABSTRACTS

1. Rex, F., Corte, A., **Klauberg, C.**, Silva, C.A et al 2019. Estimating Above-Ground Biomass in *Araucaria Angustifolia* at Tree Level Using Airborne Lidar Data. - XVII Brazilian Symposium on Remote Sensing. 2019.
2. Silva, C.A.; **Klauberg, C.**; Duncanson, L. et al. Estimating Forest Attributes in Industrial *Pinus taeda* L. Forest Plantations in Brazil Using Simulated Nasa's GEDI Spaceborne Lidar Data. XVII Brazilian Symposium on Remote Sensing. 2019.
3. Mohan, M., Silva, C.A., **Klauberg, C.**, Cardil, A. Applying Mixed-Effects Model for Estimating Individual Tree Attributes in Eucalyptus spp. Forest Plantations from Field And Airborne Lidar Data. - XVII Brazilian Symposium on Remote Sensing. 2019.
4. Rex, F., Corte, A., **Klauberg, C.**, Silva, C.A. Comparison Between Random Forest and Linear Regression for Tropical Forest Aboveground Biomass Estimation. XVII Brazilian Symposium on Remote Sensing. 2019.

5. Mohan, M., Araujo B., Silva, C., **Klauberg, C.** Combining Airborne Laser Scanning and Local Maxima Algorithm for Individual Tree Detection in Coconut (*Cocos Nucifera* L.) Forest Plantations. XVII Brazilian Symposium on Remote Sensing. 2019.
6. Silva, C. A.; Hudak, A.; Vierling, L. A.; **Klauberg, C.**; Kato, A.; Cardil, A.; Weiskittel, A. Estimating individual tree aboveground carbon in a fast-growing *Eucalyptus* spp. forest plantation from airborne lidar data using a mixed-effects model. Silvilaser, Blacksburg, Virginia, USA. 2017.
7. Hudak, A.; Bright, B.; Pokswinski, S.; Loudermilk, E. L.; O'Brien, J.; **Klauberg, C.**; Silva, C.A. Longleaf pine overstory structure constraints fine-scale dynamics in fuels, fire, and plant species diversity. In: Ecological Society of America - ESA - Annual Meeting (Portland, USA). 2017.
8. Silva, C.A.; Hudak, A.; Rowell, E.; Seielstad, C.; **Klauberg, C.**; Bright, B.; Loudermilk, E. L. ; O'Brien, J. J. Comparison of terrestrial and airborne LiDAR derived crown metrics for describing forest structure at Eglin Air Force Base, Florida, USA. In: Ecological Society of America - ESA - Annual Meeting (Portland, USA). 2017.
9. Silva, C. A.; Hudak, A.; Vierling, L. A.; **Klauberg, C.**; Ferraz, A. ; Alonso, M. G. ; Keller, M. ; Saatchi, S. Influence of the airborne lidar pulse density on biomass change prediction in tropical forest. 2016 AGU Fall Meeting, 2016.
10. Silva, C. A.; Hudak, A.; Vierling, L. A.; **Klauberg, C.**; Ferraz, A. ; Alonso, M. G. ; Keller, M. ; Saatchi, S. Modeling aboveground biomass from individual tree LiDAR-derived metrics in tropical forest. In: ForestSAT, 2016, Santiago. ForestSAT 2016, 2016.
11. Silva, C. A.; Hudak, A.; Vierling, L. A.; **Klauberg, C.**; Ferraz, A.; Alonso, M. G. ; Keller, M. ; Saatchi, S. Impacts of Airborne Lidar Pulse Density on Estimating Biomass Stocks and Changes in Tropical Forests. In: ForestSAT, 2016, Santiago. ForestSAT 2016, 2016.
12. Silva, C.A.; Hudak, A.; Crookston, N.L.; **Klauberg, C.**; Liesenberg, V. Detecting Individual Trees using a WEB-LIDAR Forest Inventory Application. Part 1: The Treetop Tool. In: XI Seminário de Atualização em Sensoriamento Remoto e Sistemas de Informações Geográficas Aplicados à Engenharia Florestal, Curitiba. v.1. p.300 – 306. 2014.
13. Silva, C.A.; Hudak, A.; Crookston, N.L.; **Klauberg, C.**; Liesenberg, V. Extracting individual trees and LiDAR metrics using a Web-LiDAR forest inventory application. part 3: The 3D ClusterTree tool. In: XI Seminário de Atualização em Sensoriamento Remoto e Sistemas de Informações Geográficas Aplicados à Engenharia Florestal, v.1. p.399 – 405. 2014.
14. Silva, C.A.; Hudak, A.; Crookston, N.L.; **Klauberg, C.**; Liesenberg, V. Visualizing and Generating LiDAR Metrics using a Web-LiDAR Forest Inventory Application. Part 2: The LASMetrics Tool In: XI Seminário de Atualização em Sensoriamento Remoto e Sistemas de Informações Geográficas Aplicados à Engenharia Florestal, v.1. p.768 – 774. 2014.
15. Silva, C.A.; **Klauberg, C.**; Hudak, A.; Almeida, D.R.A. Extração de árvores individuais em dados LiDAR usando o aplicativo de inventário florestal WEB-LiDAR 3D ClusterTree. In: III simpósio nacional de inventário florestal. Anais do III simpósio nacional de inventário florestal. Manaus, v.1. p.125 – 125. 2014.
16. Silva, C.A.; **Klauberg, C.**; Hudak, A.; Almeida, D.R.A. Individual tree detection using WebLiDAR treetop forest inventory application. In: In: III simpósio nacional de inventário florestal. Anais do III simpósio nacional de inventário florestal. Manaus. v.1. p.124 – 125. 2014.
17. **Klauberg, C.**; Vidal, E.; Rodriguez, L.C.E.; Diaz-Balteiro, L. Sustainable management of copaiba (*Copaifera* spp.) for oil production: definition of an optimal rotation. In: The International Forestry Review - XXIV IUFRO World Congress 2014. Salt Lake City, USA: The commonwealth forestry association, 2014. v.16. p.441 – 441. 2014.

18. Silva, C.A.; **Klauberg, C.**; Hudak, A.; Liebermann, R.; Carvalho, S.P.C.E.; Rodriguez, L. C. E. Aplicando filtro local máximo (LM) através dos métodos da janela fixa e variável em dados LIDAR para identificação de árvores individuais em um povoamentos de *Eucalyptus* sp. In: XVI SBSR Simpósio Brasileiro de Sensoriamento Remoto, SBSR, Foz do Iguaçu. p.6081 – 6088. 2013.
19. Silva, C.A.; **Klauberg, C.**; Hudak, A.; Liebermann, R.; Carvalho, S.P.C.E.; Rodriguez, L. C. E. Avaliação do uso da tecnologia LiDAR para predição da homogeneidade de um povoamento de *Eucalyptus* sp., baseado na extração de arvores individuais. In: XVI SBSR Simpósio Brasileiro de Sensoriamento Remoto, SBSR, Foz do Iguaçu. p.6089 – 6096. 2013.
20. Silva, C.A.; **Klauberg, C.**; Carvalho, S.P.C.E.; Hudak, A.; Rodriguez, L.C.E. Discrete-return LiDAR data and model development to predict aboveground carbon stocks in *Eucalyptus* spp. plantations in Brazil. In: SilviLaser, 2013, Beijing, China. Proceedings of SilviLaser 2013.
21. Silva, C.A.; **Klauberg, C.**; Carvalho, S.P.C.E.; Rodriguez, L.C.E. Estimation of aboveground carbon stocks in Eucalyptus plantations using LIDAR In: 2013 IEEE International Geoscience and Remote Sensing Symposium - IGARSS., Melbourne, p. 972. 2013.
22. Silva, C.A.; Liesenberg, V.; **Klauberg, C.**; Hudak, A.; Liebermann, R.; Rodriguez, L.C.E. Influência da interpolação na geração de MDTs a partir de pontos classificados LiDAR. In: Anais XVI Simpósio Brasileiro de Sensoriamento Remoto - SBSR., Foz do Iguaçu. p.6105 – 6112, 2013.
23. Silva, C.A.; **Klauberg, C.**; Hudak, A.; Liebermann, R.; Carvalho, S.P.C.E.; Rodriguez, L. C. E. Utilização da tecnologia LiDAR para estimação da biomassa florestal em povoamentos de *Eucalyptus* sp. In: XVI SBSR Simpósio Brasileiro de Sensoriamento Remoto, SBSR, Foz do Iguaçu. p.6097 – 6104. 2013.
24. **Klauberg, C.**; Silva, EJV Da; Silva, C.A. Utilizando ferramenta SIG para subsídio ao inventário de um produto florestal não madeireiro (PFNM) do tipo cipó, em área florestal Amazônica. In: XVI SBSR Simpósio Brasileiro de Sensoriamento Remoto, Foz do Iguaçu, p.120 – 127, 2013.
25. Silva, C.A.; Liesenberg, V.; **Klauberg, C.**; Hudak, A.; Liebermann, R.; Rodriguez, L.C.E. Variações de MDTs gerados a partir de dados LiDAR: Estudo comparativo entre diferentes classificadores. In: XVI SBSR Simpósio Brasileiro de Sensoriamento Remoto - SBSR, Foz do Iguaçu. p.6113 – 6120. 2013
26. Berri, P.V.; Silva, J.O.; Souza, K.; Silva, C.A.; **Klauberg, C.** Análise da estrutura de uma espécie arbórea em um fragmento de Floresta Ombrófila Mista, Painel, SC. In: II Simpósio Internacional de Ciência, Saúde e Território, Lages, SC. v.2. p.119 – 120. 2013
27. Silva, C.A.; **Klauberg, C.**; Camargo, P.; Camargo, M.C.; Berri, P.V. Análise da Estrutura Florestal com o Uso da Tecnologia LiDAR. In: II Simpósio Internacional de Ciência, Saúde e Território, Lages, SC. v.2. p.117 – 118. 2013.
28. Silva, C.A.; **Klauberg, C.**; Camargo, M. C.; Camargo, P.; Berri, P.V. Análise Da Homogeneidade Florestal com o Uso da Tecnologia Lidar. In: II Simpósio Internacional de Ciência, Saúde e Território, Lages, SC. v.2. p.109 – 110. 2013
29. **Klauberg, C.**; Vidal, E.; Rodriguez, L.C.E.; Diaz-Balteiro, L. Análisis del ciclo óptimo de la recolección de aceite de copaiba (*Copaifera* spp.) en el Estado de Pará, Brasil. In: Tercer Congreso Latinoamericano de IUFRO, IUFROLAT: Bosques, competitividad y territorios sostenibles, San José. 2013.
30. Monto, M.B.; **Klauberg, C.**; Silva, C.A.; Vidal, E. Avaliação de danos após manejo madeireiro empresarial em floresta ombrófila densa na Amazônia, Paragominas, Pará. In: 21º SIICUSP - Simpósio Internacional de Iniciação Científica da USP, Piracicaba. 2013.

31. Silva, C.A.; **Klauberg, C.**; Camargo, M.C.; Camargo, P.; Berri, P.V. Generating Topographic Maps Using Lidar: An Approach Applied to Forest Management. In: II Simpósio Internacional de Ciência, Saúde e Território, Lages, SC. v.2. p.150 – 151. 2013.
32. Silva, C.A.; **Klauberg, C.**; Camargo, P.; Camargo, M. C.; Berri, P.V. Inventário Florestal Através De Dados LiDAR: Uma Abordagem Voltada a Estimativa de Árvores Individuais. In: II Simpósio Internacional de Ciência, Saúde e Território, Lages, SC. v.2. p.153 – 154. 2013.
33. Pereira, P.V.P.; Vidal, E.; **Klauberg, C.** Avaliação da ocorrência de um produto florestal não madeireiro na região Amazônica – o cipó-titica (*Heteropsis* spp.). In: 21º SIICUSP. Simpósio Internacional de Iniciação Científica da USP, Piracicaba. 2013.
34. Carvalhaes, M.A.; **Klauberg, C.**; Vidal, E.; Hoehne, S.M.; Oliveira, R.; Zakia, M.J. B. Heterogeneity of babaçu palm forests productivity in Northeastern Brazil In: UFRO Landscape Ecology Conference, Concepcion. 2012.
35. **Klauberg, C.**; Vidal, E; Cunha, R.S.; Silva, C.A.; Lentini, M. Amostragem de um produto florestal não madeireiro: cipó-titica (*Heteropsis* sp.), na região Amazônica. In: X Congresso de Ecologia do Brasil, São Lourenço – MG. 2011.
36. Silva, C.A.; **Klauberg, C.**; Berri, P.V.; Vidal, E. Ecologia da espécie *Drimys brasiliensis* Miers. (Winteraceae) em um remanescente de Floresta Ombrófila Mista, Serra da Farofa, Paineis, SC, Brasil. In: X Congresso de Ecologia do Brasil, São Lourenço - MG. 2011.
37. Silva, C.A.; **Klauberg, C.**; Berri, P.V.; Vidal, E. Estrutura populacional de *Myrcia glabra* (O.Berg) D. Legrand. (Myrtaceae) em um trecho de Floresta Ombrófila Mista, no interior do estado de Santa Catarina, Brasil. In: X Congresso de Ecologia do Brasil, São Lourenço – MG. 2011.
38. **Klauberg, C.**; Vidal, E.; Ducatti, M.; Silva, C.A. Produção de óleo de copaíba (*Copaifera* sp.) em Floresta Amazônica – Paragominas, PA. In: X Congresso de Ecologia do Brasil, São Lourenço - MG. 2011.
39. Liz, J.P.C.; Salami, G.; Campos, M.L.; **Klauberg, C.**; Mantovani, A. Correlação entre as características edáficas e a vegetação em uma Floresta Ombrófila Mista. In: XXIX Reunião Brasileira de Fertilidade do Solo e Nutrição de Plantas - FERTBIO; XI Simpósio Brasileiro de Microbiologia do Solo; VIII Reunião Brasileira de Biologia do Solo, Guarapari - ES. 2010.
40. Cunha, R.S.; **Klauberg, C.**; Vidal, E. Avaliação do Potencial Produtivo e de Manejo Florestal Sustentável de Cipó-titica (*Heteropsis* spp.) na Amazônia Oriental. In: 18º Simpósio de Iniciação Científica da USP, Piracicaba. 2010.
41. Silva, C.A.; **Klauberg, C.**; Costa, N.C.F.; Silva, A.C.; Higuchi, P. Ecologia da espécie *Allophylus edulis* (St.-Hil.) Radlk. (Sapindaceae) em um remanescente de Floresta Ombrófila Mista Montana, Campos Novos, SC, Brasil. In: IX Congresso Ecologia do Brasil, São Lourenço - MG. 2009.
42. **Klauberg, C.**; Silva, C.A. Ecologia Da Espécie *Araucaria Angustifolia* (Bertol.) Kuntze (Araucariaceae) Em Um Remanescente De Floresta Ombrófila Mista Alto-Montana, Serra Da Farofa, Paineis, Sc, Brasil. In: IX Congresso de Ecologia do Brasil, São Lourenço, MG. 2009.
43. **Klauberg, C.**; Silva, C.A.; Higuchi, P.; Silva, A.C. Fitossociologia De Um Remanescente De Floresta Ombrófila Mista Alto-Montana Na Serra Da Farofa, Município De Paineis – SC. In: IX Congresso de Ecologia do Brasil, São Lourenço, MG. 2009.
44. Silva, A.C.; **Klauberg, C.**; S.Ferreira, T.; Silva, K.M.; Gomes, J. P.; Berndt, E.J.; Gois, D.T.; Santos, K.F.; Souza Junior, J.O; Souza, S.T.; Weiduschat, F.; Guidini, A.L.; Bortoluzzi, R.L.C.; Chaves, C.L.; Macedo, A.F.; Almeida, J.A.; Mantovani, A.; Influência de variáveis edáficas e da cobertura do dossel sobre o componente arbóreo de um fragmento de Floresta

- Ombrófila Mista em Campos Novos, SC In: IX Congresso de Ecologia do Brasil, São Lourenço, MG. 2009.
45. Campos, M.L.; Mantovani, A.; Miquelluti, D.; **Klauberg, C.**; Paludo, G.F.; Liz, J.P.C. Levantamento, classificação dos solos e avaliação das inter-relações entre as características edáficas com a floresta e a aptidão agrícola. In: 18º Seminário de Iniciação Científica da UDESC, Lages. v.1. p.43 – 43. 2008.
46. Paludo, G.F.; **Klauberg, C.**; Mantovani, A. Padrão espacial em uma população de *Araucaria angustifolia* (Bert.) Kuntze, utilizando a função K de Ripley. In: 59º Congresso Nacional De Botânica, Natal. 2008.
47. Paludo, G.F.; **Klauberg, C.**; Mantovani, A.; Teixeira, C. Estrutura demográfica e padrão espacial de uma população de *Araucaria angustifolia* (Bert.) O. Kuntze no estado de Santa Catarina. In: 58º Congresso Nacional de Botânica, São Paulo. 2007.
48. Mantovani, A.; Paludo, G.F.; **Klauberg, C.** Estrutura genética e demográfica de uma população natural de *Araucaria angustifolia* (Bert.) O. Kuntze no estado de Santa Catarina. In: Seminário de Iniciação Científica CAV/UDESC, Lages. p.69 – 69. 2007.
49. **Klauberg, C.**; Paludo, G.F.; Bortoluzzi, R.L.C.; Mantovani, A. Florística e fitossociologia de um fragmento de Floresta Ombrófila Mista no Parque Natural Municipal João José Theodoro da Costa Neto, Lages, SC, Brasil. In: 58º Congresso Nacional de Botânica, São Paulo. 2007.
50. **Klauberg, C.**; Paludo, G.F.; Bortoluzzi, R.L.C.; Mantovani, A. Florística e fitossociologia de um fragmento de Floresta Ombrófila Mista no Parque Natural Municipal João José Theodoro da Costa Neto, Lages, SC, Brasil. In: XVII Seminário de Iniciação Científica da UDESC, Lages. v.1. p.001 – 001. 2007.

CONFERENCE PRESENTATION

- | | |
|--|-------------|
| □ American Geophysical Union, Fall General Assembly – AGU (San Francisco, USA) (Poster) | 2016 |
| □ XXIV IUFRO World Congress - The International Forestry Review (Salt Lake City, USA) (Poster) | 2014 |
| □ Anais XVI Simpósio Brasileiro de Sensoriamento Remoto – SBSR (Foz do Iguaçu, Brazil) (Poster) | 2013 |
| □ Tercer Congreso Latinoamericano de IUFRO, IUFROLAT: Bosques, competitividad y territorios sostenibles, San José (Poster) | 2013 |
| □ 58º Congresso Nacional de Botânica, São Paulo – Brazil (Poster) | 2007 |
| □ XVII Seminário de Iniciação Científica da UDESC. Lages – Brazil (Talk) | 2007 |

TEACHING EXPERIENCE

- | | |
|---|------------------|
| □ FRIS Forest Resource Information System – School of Forest, Fisheries and Geomatics Sciences - SFFGS/ IFAS /University of Florida | 2024 |
| □ Research methodology and scientific writing – Federal University of São João Del-Rei - UFSJ | 2021-2022 |
| □ Tropical Forest Management – Federal University of São João Del-Rei - UFSJ | 2018-2022 |
| □ Forest Fires – Federal University of São João Del-Rei - UFSJ | 2018- |

- | | |
|---|--------------------|
| | 2022 |
| □ Technical Drawing– Federal University of São João Del-Rei - UFSJ | 2018-2022 |
| □ Lecturer for LCF0637, “Management of Tropical Forests”, University of São Paulo, USP/Esalq | 2013 |
| □ Faculty: Professor of Forest Engineering. Courses: “Renewable Natural resources management”, “Wildfire”, “Forestry Projects and Planning”, “Environmental and forestry policy and legislation”, State University of Santa Catarina, UDESC | 2010 |
| □ Teacher Assistant for “Systematic Botanic”, State University of Santa Catarina, UDESC | 2008 - 2009 |
| □ Teacher Assistant for “Herbarium”, State University of Santa Catarina, UDESC | 2007 |
| □ Teacher Assistant for “Seed Laboratory”, State University of Santa Catarina, UDESC | 2005 |

COMPLEMENTARY TRAINING

- | | |
|---|-------------|
| □ Rural environmental registry (Cadastro Ambiental Rural - CapCAR). (course load: 78h). Federal University of Lavras - UFLA, Lavras, Brazil | 2015 |
| □ LiDAR data Processing. (course load: 20h). State University of Santa Catarina – UDESC/CAV, Lages, Brazil. | 2013 |
| □ Forest management and reduced impact logging (RIL). (course load: 85h). Tropical Forest Institute – IFT, Paragominas, Brazil. | 2011 |
| □ Sustainable Use of Amazonian Ecosystems. (course load: 100h). EMBRAPA, Amapá, Brazil. | 2010 |
| □ Adaptation period to the jungle. (course load: 44h). Centro de Instrução de Guerra na Selva – CIGS, Manaus, Brazil. | 2008 |
| □ Basics of Forest Management. (course load: 240h). National Institute of Amazonian Research – INPA, Manaus, Brazil. | 2008 |

AWARDS AND HONORS

- | | |
|--|-------------|
| □ Postdoctoral Fellowship - Brazilian National Council for Scientific and Technological Development (CNPq) | 2015 |
| □ Fellowship for research exchange within the frame of ForEAdapt; Universidad Politécnica de Madrid - UPM | 2012 |
| □ PhD Fellowship – FAPESP and CNPq | 2010 |
| □ Organization of Ibero-American States Fellowship - Universidad de la Republica Uruguay - UdelaR | 2009 |

GRANT SUPPORT

Role	Reportin	Grant Title	Dates	Awarded
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	g Agency			(\$ USD)
PD/PI	USDA FS/ SERDP	Imputing surface fuel fire radiative energy estimates at the tree-level using remote sensing	Feb/2022- Feb/2024	\$266,477.00
Collaborator	USDA NIFA AFRI	RapidFEM4D: A web-based mapping platform for rapidly assessing the impacts and near-term recovery of Hurricane Ian on forest ecosystems in Florida	Feb/2023- Feb/2024	\$300,000.00
Collaborator	Joint Fire Science Program (22-2- 02-15)	EMS4D: multi-scale fuel mapping and decision support system for next generation of fire management	Sep/2022 - Sep/2025	\$492,115.00
Collaborator	NASA - National aeronautics and space administration	CMS4D: A Multi-Scale Data-Fusion Prototype System for the Next Generation of Carbon Dynamics Monitoring From Space: A Case Study in the Brazilian Cerrado – Fire and Fuel in a Biodiversity Hotspot	Apr/2023 – Apr/2025	\$638,498.57
Collaborator	NASA - National aeronautics and space administration	ICESat-4D: Monitoring Forest Resistance and Post-Hurricane Recovery Dynamics in Southern Forests by the Synergism of ICESat-2, SAR, and Optical Data and an Ecosystem Demography Model	Apr/2023 – Apr/2025	\$492,214.82
Collaborator	NASA - National aeronautics and space administration	HurricaneSat4D: Exploring the use of PlanetScope and GEDI Data for Assessing Post-Hurricane Damage Severity and Forest Recovery in Southern US Forests.	Apr/2023 – Apr/2025	\$329,533.00
PD/PI	CNPQ - Brazil	Mapping fuel loads and simulation of fire behavior and spread in the Brazilian savanna biome using modeling and remote sensing technologies	Jan 2019 – Jan - 2021	\$45,000.00

- Foundation Support Research for State of São Paulo (FAPESP), Process No 2010/16525-7, Project title: “Potencial produtivo e de manejo de dois produtos florestais não-madeireiros chaves no contexto de comunidade na região Amazônica, o cipó-titica (*Heteropsis* spp.) e a copaíba (*Copaifera* spp.)” for three years. US\$ 10K – 2010.

PERIODICAL REVIEWER AND EDITORSHIP

- **Reviewer**
Forest Ecology and Management, Method Ecology and Evolution, Journal of Forestry Research,

Remote Sensors, Forests, ISPRS Journal of Photogrammetry and Remote Sensing, Cerne (UFLA), Floram - Revista Floresta e Ambiente, Advances in Forestry Science, Journal of Tropical Forest Science, Remote Sensing, Journal of Imaging, Sensors

▪ **Editorship**

1. Guest Editor: Special issue on " Applications of LiDAR and Photogrammetry for Forest Inventory and Management ", Forests (ISSN 1999-4907; IF: 2.116)
(https://www.mdpi.com/journal/forests/special_issues/LiDAR_Inventory), 2018-2019.
2. Guest Editor: Special issue on "Carbon storage measurement through remote sensing", Remote Sensing (ISSN 2072-4292; IF: 4.118)
(https://www.mdpi.com/journal/remotesensing/special_issues/carbon_storage_measurement), 2019-2020.
3. Guest Editor: Special issue on " LiDAR Remote Sensing of Forest Resources and Wildland Fires", Remote Sensing (ISSN 2072-4292; IF: 4.118)
https://www.mdpi.com/journal/remotesensing/special_issues/LiDAR_RS_Forest_Resources_Wildland_Fires 2019-2021

UNDERGRADUATE AND GRADUATE MENTORSHIP COMMITTEES

<input type="checkbox"/> Luiz Eduardo Oliveira e Cruz de Aragão – Presidente – INPE, Dra. Liana Oighenstein Anderson – Orientadora – CEMADEN, Dr. Alber Hamersson Sánchez Ipiá – Membro Interno – INPE, Dr. Celso Henrique Leite Silva Júnior – Membro Externo – IPAM, Dra. Carine Klauberg Silva – Comitee Member – Ph.D. qualification examination . Thaís Pereira de Medeiros.	2024 - present
<input type="checkbox"/> Silva, C.A., Valle, D., Klauberg, C. Ph.D. qualification examination Monique Shilinkman.	2022 - present
<input type="checkbox"/> Mendonça, B.; Klauberg, C. ; et al. MSc defense : Tom Adnet. Vants e blockchain aplicados ao manejo florestal comunitário da Amazônia, Brasil. – Federal Rural University of Rio de Janeiro - UFRRJ.	2022
<input type="checkbox"/> Corte, A. P. D.; Klauberg, C. ; Silva, C. A. Franciel Rex PhD qualification examination. Federal University of Paraná.	2022
<input type="checkbox"/> Amaral, Cibele. Klauberg, C. ; et al. Ph.D. qualification examination : Rodrigo Vieira Leite. Estimating stem volume of <i>Eucalyptus</i> using LiDAR: a comparison of individual tree and área-based approaches. – Federal University of Viçosa - UFV.	2021
<input type="checkbox"/> Anne Laura da Silva – Federal University of São João del Rei (Forest Engineer undergraduate, advisor)	2021
<input type="checkbox"/> Marcatti, G.E.; Klauberg, C. Telles, L. A. A.; Castro, R. V. O. Participation in the committee of Irene Barbosa. Metodologia para o planejamento do traçado de estradas florestais. (Forest Engineer) Federal University of São João del Rei.	2021
<input type="checkbox"/> Anny Caroline Gomes Ribeiro - Federal University of São João del Rei - Research and Writing Methodology scientific. (teacher assistant, advisor)	2021
<input type="checkbox"/> Edceu Batista Da Conceicao Junior – Federal University of São João del Rei - Wildfire. (teacher assistant, advisor)	2020
<input type="checkbox"/> Pedro Henrique Luiz Mendes. Internship at GR Silva Transportes LTDA – forest management. Federal University of São João del Rei (Forest Engineer undergraduate,	2020

advisor)

- | | |
|---|-------------|
| □ Franciel Rex – Federal University of Paraná (Ph.D, co-advisor) | 2019 |
| □ Vinicius Junqueira – Federal University of São João del Rei (Forest Engineer undergraduate, co-advisor) | 2019 |
| □ Gustavo Torres De Oliveira - Federal University of São João del Rei - technical drawing. (teacher assistant, advisor) | 2019 |
| □ Rayssa Andrade Barbosa - Federal University of São João del Rei - technical drawing. (teacher assistant, advisor) | 2019 |
| □ Adalmir Netanyahu Rodrigues - Federal University of São João del Rei - technical drawing. (teacher assistant, advisor) | 2019 |
| □ Reginaldo Arthur Gloria Marcelino - Federal University of São João del Rei – tropical forest management. (teacher assistant, advisor) | 2019 |
| □ Klauberg, C. ; Castro, R. V. O.; Castro, A. F. N. M.; Silva, M. L. M. Participation in the committee of Maria Luiza R. Gonzaga. Relação entre variáveis dendrométricas e de competição com a produção de frutos de jatobá-do-cerrado (<i>Hymenaea stigonocarpa</i> Mart. Ex Hayne). (Forest Engineer) Federal University of São João del Rei. | 2018 |
| □ Klauberg, C. ; Castro, R. V. O.; Silva, M. L. M. Participation in the committee of Luciana da Silva Menezes. Modelagem do afileamento e otimização de multiprodutos em florestas de <i>Eucalyptus</i> . (Forest Engineer) Federal University of São João del Rei. | 2018 |
| □ Klauberg, C. ; Trombete, F. M.; Onesio, J. Participation in the committee of Jéssica Gomes Costa. Desenvolvimento e avaliação da qualidade de barra de cereais com polpa e amêndoa de pequi (<i>Caryocar brasiliense</i>). (Food Engineer) Federal University of São João del Rei. | 2018 |
| □ Vidal, E.; Batista, J.L.F.; Klauberg, C. Participation in the committee of Marina Monto. Comparação de métodos de amostragem na avaliação de danos pós-colheita em manejo florestal, Paragominas - Pará, 2013. (Forest Engineer) University of São Paulo – USP/Esalq. | 2013 |
| □ Santos, J.C.P.; Borsoi, G.A.; Klauberg, C. Participation in the committee of Jacson Marcelo Marangoni. Relatório de Estágio Técnico Profissional Assessoria e Consultoria Ambiental, 2010. (Forest Engineer) State University of Santa Catarina. | 2010 |

COMMUNICATION SKILLS

Proficient in speaking and writing in Portuguese, Spanish, and English.

COMPUTER SKILLS

R, FUSION, QGIS, GS+, MS Office, Lastools, AutoCAD, DraftSight®

Software Developed

- **Klauberg, C.,** Vogel, J., Dalagnol, R., Ferreira, M., Broadbent, E.N.; Hamamura, C., Souza, D. R. F, Silva, Nogueira, L. G. A., C.A. rTLsDeep: An R Package for post-hurricane damage severity classification at the individual tree level using terrestrial laser scanning and deep learning. Version 0.0.1, accessed on December. 30 2022, available at: <https://github.com/carlos-alberto-silva/rTLsDeep> □ **2022**
- Silva et al.; **Klauberg, C.** rGEDI: An R Package for NASA's Global Ecosystem Dynamics Investigation (GEDI) Data Visualizing and Processing. <https://github.com/carlos-alberto-silva/rGEDI> □ **2020**
- Silva, C.A.; **Klauberg, C.** et al. ForestGapR: Tropical Forest Gaps Analysis. Available at <https://cran.r-project.org/web/packages/ForestGapR/index.html> □ **2019**
- Silva, C.A.; **Klauberg, C.** et al. rForest: An R package for Forest Inventory Analysis. Available at <https://r-forge.r-project.org/projects/rforest/> □ **2016**
- Silva, C.A.; **Klauberg, C.** et al. rLiDAR: An R package for reading, processing and visualizing LiDAR (*Light Detection and Ranging*) data. Available at <http://cran.r-project.org/web/packages/rLiDAR/index.html> □ **2015**